

In the Specification:

Please amend the paragraph beginning on page 1, line 4 as follows:

a1

Technical Field of the Invention

Please amend the paragraph beginning on page 1, line 5 as follows:

The invention relates generally to computerized Computerized wagering game systems, and more specifically to use of encryption and hash functions to ensure security in a computerized wagering game system are disclosed.

a2

Please amend the paragraph beginning on page 1, line 13 as follows:

a3

Background of the Invention

Please amend the paragraph beginning on page 6, line 9 as follows:

a4

Summary of the Invention Disclosure

Please amend the paragraph beginning on page 6, line 10 as follows:

The invention provides an An architecture and method for a wagering game-specific platform are disclosed that features secure storage and verification of game code and other data, provides the ability to securely exchange data with a computerized wagering gaming system, and does so in a manner that is straightforward and easy to manage. Some embodiments of the invention provide the ability to identify game program code as certified or approved, such as by the Nevada Gaming Regulations Commission or other regulatory agency. The invention provides these These and other functions are provided by use of encryption, including digital signatures and hash functions as well as other encryption methods. Such functions are advantageously applied to data loaded into RAM and occur while the gaming machine is in operation.

a5

*ab*

Please amend the paragraph beginning on page 6, line 21 as follows:

Figure 1 shows a computerized wagering game apparatus such as may be used to practice some disclosed embodiments of the present invention.

*a7*

Please amend the paragraph beginning on page 6, line 23 as follows:

Figure 2 shows a diagram of a networked computer connected to certain components comprising a portion of a computerized wagering game apparatus, consistent with some disclosed embodiments of the present invention.

*as*

Please amend the paragraph beginning on page 7, line 1 as follows:

#### Detailed Description of the Presently Preferred Embodiments

*a9*

Please amend the paragraph beginning on page 7, line 2 as follows:

In the following detailed description of the presently preferred embodiments ~~of the invention~~, reference is made to the accompanying drawings which form a part hereof, and in which is shown by way of illustration specific sample embodiments in which the invention may be practiced. These embodiments are described in sufficient detail to enable those skilled in the art to practice the ~~invention~~ disclosed concepts, and it is to be understood that other embodiments may be utilized and that logical, mechanical, electrical, and other changes may be made without departing from the spirit or scope of the ~~present invention~~ this disclosure. The following detailed description is, therefore, not to be taken in a limiting sense, and the scope of the ~~invention~~ disclosed embodiments is defined only by the appended claims.

*a10*

Please amend the paragraph beginning on page 7, line 11 as follows:

The ~~present invention in various embodiments provides an~~ An architecture and method for a universal operating system that features secure storage and verification of game code and other data, provides the ability to securely exchange data with a computerized wagering gaming system, and does so in a manner that is straightforward and easy to manage. Some

embodiments of the invention provide the ability to identify game program code as certified or approved, such as by the Nevada Gaming Commission or other regulatory agency. The invention provides these These and other functions are provided by use of encryption, including digital signatures and hash functions as well as other encryption methods to data being executed. Because hash functions and other encryption methods are employed widely in the present invention, they are introduced and discussed here.

Please amend the paragraph beginning on page 10, line 3 as follows:

Other encryption methods and formulas exist, and are also usable consistent with the present invention disclosed embodiments. Some symmetric encryption methods, such as DES (Data Encryption Standard) and its variants rely on the secrecy of a single key, and so may not be adaptable to methods described herein that require a key pair with a public key. A variety of other encryption methods, such as RSA and Diffie-Hellman are consistent with public/private key methods, and are usable in these methods. Various hash functions may also be employed, such as MD5 or SHA, and will be useful in many aspects consistent with the present invention this disclosure so long as they are sufficiently nonreversible to be considered one-way hash functions. Various encryption methods will also provide varying degrees of security, from those that are relatively easy to defeat to those that are extremely difficult to defeat. These various degrees of security are to be considered within the scope of encryption methods consistent with this application, including various degrees of security that may to varying degrees of probability make encrypted data unforgeable, unreadable, or the like. A variety of encryption methods exist and are expected to be developed in the future, all of which are likely to be employable in some aspect consistent with the present invention, and are within the scope of the invention.

Please amend the paragraph beginning on page 12, line 15 as follows:

Figure 2 illustrates a networked computer connected to selected items that comprise a part of a computerized wagering game apparatus, as are used in various embodiments of the present invention. The computerized game controller 201 has a processor 202, memory 203, and nonvolatile

*a<sup>12</sup>*

memory 204. One example of nonvolatile memory is a flash disk on chip (hereinafter "flash disk"). The flash disk is advantageously read/write, yet retains information stored on disk upon power down. Attached to the computerized game controller of some embodiments is a mass storage device 205, and a network interface adaptor 206. The network interface adaptor is attached to a networked computer 207 via network connection 208. The various components of Figure 2 exist within disclosed embodiments of the invention, and are illustrated to show the manner in which the various components are associated.

---

Please amend the paragraph beginning on page 13, line 18 as follows:

The invention employs encryption, including hash functions, symmetric encryption, and public key/private key encryption in various embodiments, which provides a degree of confidence that data utilized by the computerized gaming system and protected by encryption in accordance with the invention is not altered or forged. The data within the scope of the invention this disclosure includes but is not limited to data comprising programs such as operating system or game program data, computerized gaming machine status data such as credits or other game state data, control instruction data for controlling the operation of the computerized gaming apparatus, and other computerized gaming machine data.

---

*a<sup>13</sup>*

Please amend the paragraph beginning on page 14, line 28 as follows:

The shared object code, as well as other data may be verified according to one embodiment of the present invention by first preparing a signature from data, as shown in Figure 3. The signature may be prepared by first hashing 210 the data set 212 to create a message digest 214. The message digest is encrypted via an encryption program that is stored on ROM utilizing a private/public key algorithm 218, forming a unique signature 220. The data and signature are then stored on a mass storage device 222 such as a network storage device, hard drive, CD-ROM, RAM, flash disk or the like.

---

*(15)*

Please amend the paragraph beginning on page 18, line 4 as follows:

---

Such network communication methods are utilized in the invention to provide for secure exchange of data between computerized wagering game systems and other networked computer systems. For example, control commands that control certain aspects of the operation of the computerized wagering games are securely sent over a network in some embodiments of the invention. Such commands may include increasing odds of payout on selected computerized wagering game systems, or changing the game program that is executed on selected computerized wagering game systems at selected times of the day. The computerized wagering games in some embodiments securely report game data such as bookkeeping data to a networked computer 207 via encryption. In still other embodiments of the invention, wagering game program data is securely transmitted over the network to the computerized wagering game systems, providing a secure way to provide new wagering games to the systems without physically accessing each computerized wagering game system. Various embodiments of the invention transmit other computerized wagering game data over a network connection via encryption, and are within the scope of the invention this disclosure.

---

*(16)*

Please amend the paragraph beginning on page 18, line 19 as follows:

---

Because encryption methods typically provide a degree of security that is dependent on the effort and expense a hacker is willing to invest in defeating the encryption, replacement of encryption keys is employed in some embodiments of the invention. Digital signatures in some embodiments are valid only for a predetermined period of time, and in further embodiments have an associated date of expiry after which they may no longer be used. Such methods can also be used in various embodiments of the invention to license games for use for a certain period of time, after which they will not be properly verified due to expiry of the encryption keys used for data verification. Because hash functions typically produce hash values that are dependent entirely on the data being hashed, embodiments of the invention which incorporate expiry and replacement of reference hash values also require reissuance of modified data to produce a different hash value. For example,

*a 16*  
minor bug fixes, addition of new features, or any other small change in the data comprising a gaming program will be sufficient to produce a different reference hash value upon hashing the edited program data, resulting in an updated reference hash value corresponding to the updated data.

Please amend the paragraph beginning on page 19, line 5 as follows:

Other embodiments use a variety of keys among various computerized wagering games and game producers, reducing the risk and therefore the value of successfully defeating an encryption key. For example, a game producer in one embodiment employs a different digital signature for each customer of its computerized wagering games, ensuring that defeating the encryption key on a single game system affects a limited number of games. In another embodiment, a regulatory agency may change keys with which it signs games on a periodic basis, so that a successful hack of the keys used to sign the data results in potential compromise of only a limited and identifiable number of games. It will be obvious to one skilled in the art that many variations on key replacement and expiry policies exist, all of which are considered within the scope of ~~the present invention~~ this disclosure.

Please amend the paragraph beginning on page 19, line 16 as follows:

~~The invention provides an~~ An architecture and method for a gaming-specific platform are disclosed that features secure storage and verification of game code and other data, provides the ability to securely exchange data with a computerized wagering gaming system, and does so in a manner that is straightforward and easy to manage. Some embodiments ~~of the invention~~ provide the ability to identify game program code as certified or approved, such as by the Nevada Gaming Regulations Commission or other regulatory agency. ~~The invention provides these~~ These and other functions by use of encryption, including digital signatures and hash functions as well as other encryption methods.